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A City Garden.

ONE of the famous small gardens of the world is attached to the dwelling of the Borsig family in Berlin, and an abstract of an account of it, recently published in *Gartenflora*, may be of service here, as showing what may be accomplished upon a small area under urban conditions, if wealth is aided by patience, intelligence and a real interest on the part of the owners.

The wealth of this family dates from the introduction of railways into Germany. In 1841 the first locomotive built in that country was finished in the shops of August Borsig, and when he died, in 1854, the five-hundredth locomotive of his manufacture had just been completed. About the year 1845 he purchased, in a suburb of Berlin, which has since become a part of the city, a modest dwelling-house and a very much-neglected and almost barren garden covering about thirteen acres of land. Intending it at first merely for a quiet summer retreat, he soon transformed it into a fine residence and made it his permanent home. Strack, one of the foremost architects of the day, built him a large but simple and dignified house; Lenné, the leading landscape-gardener of Germany, laid out his garden, and he himself designed the glass houses, using methods of iron construction which were then quite novel.

To perfect the garden as quickly as possible neither pains nor money was spared, and large old trees were transplanted, among them an Oak ten feet in circumference, which was brought a distance of 1,700 feet, and many of its neighbors were of almost equal size. A winter garden filled with flowering plants was supplemented by an immense Palm-house. In building and filling this house, Herr Borsig was helped by the botanist Von Warscewicz, and in return the engine-builder assisted him in the prosecution of his explorations in tropical lands. Professor Karsten further enriched this collection with some Tree-ferns which he had just brought home from tropical America.

In 1849 Herr Borsig built iron-works not far from his villa, and he was the first to conceive an idea, which has since been often imitated in this country and in Europe, of conveying waste hot-water from the factory to his garden-tanks, where tropical aquatics were grown in the open air. As soon as Schomburgk had introduced the Victoria Regia it was planted in the Borsig garden, and there in a little temple-like greenhouse, specially devoted to it, the first flowers which it produced in Berlin unfolded during the summer of 1852.

It is not strange that such a collection of interesting plants, charmingly housed and grouped, should soon have become widely known, but in our restless times it is remarkable that this place, created fifty years since, should still preserve its beauty and importance. The work and the pleasure of his father were continued by Herr Albert Borsig, and now that he also is dead, his widow still tends the garden and villa with intelligence and love.

One of the additions to the riches of the garden made by the younger Borsig was the famous Hanbury collection of Orchids, which he bought entire in London for $10,000. He also collected a large library of gardening literature, which embraces the collection of Eduard Haenel, famous in its day. His care for individual objects of interest is shown by the fact that when the Araucarias, which his father had planted, grew too tall to be protected by boards in winter, he built a covering of glass and iron which could easily be put together when the season required, and also could be extended at the top as the future growth of the trees might require.

Berlin has to-day a much longer list of attractive sights than it had in the time of the first Borsig; but the gardens which he established, and which his son improved, are still prominent attractions to natives and strangers, and the original owner's hospitality to visitors continues to be the family creed. Camellias have never gone out of fashion in Germany as they have in this country; and when the ranks of fine old Camellia-trees in the Winter-garden are loaded with flowers the stream of sight-seers is more constant than at any other time of the year.

Several instructive pictures of these gardens and greenhouses are given with the article in *Gartenflora;* but specially interesting is the one which shows the way in which the loggia and the veranda are connected, and their relation to the house. The veranda lies against a portion of the back of the house, whence the gardens extend; it is wide and square, raised high above the ground to a level with the main floor of the house, and approached from one side by a flight of sixteen steps running parallel with the wall of the house. This flight is comparatively narrow at the top, but six steps from the bottom it broadens out to the full width of the veranda, thus supplying a sort of intermediate terrace. Here on either side of the upper steps, and backed against the base-wall of the veranda, are rich masses of flowering plants, uniting with vines, which clothe this wall and the veranda-posts, and they are profusely trained against the house itself. From the broad lower portion of the stairway rise four tall plain stone pedestals supporting statues which are copies of fine antique originals, and against the base of each of these pedestals is again a mass of flowering plants in pots. Ornamental iron-work forms the balustrades and posts of the veranda, and its roof seems to be of the same material. From the side of the back portion of the veranda the loggia stretches away at right angles to the house, and the heavy foliage of a great tree, which springs up behind it, unites the two structures, of different heights, into an harmonious whole.

The great interest of this picture is that it shows the advantage of bringing architectural and natural elements into integral relationship with each other. Too often in this country we build a house and plant a garden as though neither was concerned in the aspect of the other; and the result, of course, is a want of union and harmony destructive to the true beauty of both. Not many dwellers in our large cities can hope to have gardens as extensive as this one. But there are plenty of residences in our eastern towns, of the second class, where the grounds are as extensive, and where great architectural ambition is expressed in the house; and even the most costly houses in the prin-

cipal streets of some of our great western cities (houses quite as costly as the Borsig villa) often have grounds which are large enough, if not for extensive horticultural effort, at least for effective artistic treatment. If more attention were given to the size, shape, position and architectural dignity of their porches or piazzas, if encircling blank walls were masked below with graceful loggias, as useful as they might be beautiful, and if planting were intelligently practiced, so as to connect the open portions of the grounds with their architectural environment, then we might often see in our cities the same kind of beauty which has been achieved in the Borsig villa, and a coherent design and an adaptation of features individually fine to the production of a general picture more charming than any of its details.

Moreover, American customs of summer life, often crowding the most costly houses together, with but small expanses of ground about them, dictate methods of garden-design which might often be more architectural, less "naturalistic" in idea. More dignity and regularity in the architectural adjuncts of the house, more system and symmetry in the disposition and planting of the grounds, and, above all, greater care in prescribing that similar ideas should control the design of house and of grounds, and that they should be integrally united, would work much improvement in the general aspect as well as in the individual beauties of such a place as Newport, for example. Too often now we see a fine, solidly built house fitted with porches and piazzas more proper to a rustic cottage; and, whether this be the case or not, the grounds are usually laid out in a would-be natural manner, suggestive of some really rural site and type of architecture.

It is not needful that such grounds, unless they are so small as to be scarcely more than door-yards, should be disposed throughout in a formal manner. The main portions of the Borsig grounds are naturalistically disposed and irregularly planted with groups of freely growing trees and shrubs. To-day they are rather too much overshadowed, looking as though tree-cutting had not been so systematically practiced as it would have been could Lenné himself have watched during these past fifty years over the development of his design. But, despite the somewhat untended aspect that such a lack of the highest landscape-gardening intelligence always gives a small pleasure-ground, the general air of this one is not inappropriate to the environment of even a stately city home; and this is simply because the transition from house to garden has been skillfully managed—because there is an intermediate space where architectural and natural elements are integrally combined.

Notes of Mexican Travel.—VIII.

ZAPOTLAN AND THE NEVADO OF COLIMA.

IT was the hour before dawn, on the 10th of May, when I climbed into the diligence for Zapotlan, standing in the court of the "Meson de Guadalupe," in Guadalajara. When all was in readiness, the link-men sprang back from the heads of our string of ten half-wild mules, and immediately these, rearing and plunging, dragged our ponderous coach crashing through the portal. The streets at this hour were deserted and dark, but as the coach rolled away toward the southern gate of the city they resounded with din and echo from wheels and hoofs on the rough pavement of cobble-stones. We felt relief when the wheels struck the gravel of the fields. A slight shower had fallen overnight, and a cool breeze was blowing, to mitigate the discomforts of heat and dust, which the accounts of friends who had been over the road a few days previously led us to expect. An hour after sunrise we halted in a little village to change mules. We have five relays of mules during the day. Near Santa Ana, thirty miles out, the road descends from low hills into a level valley stretching between ranges of low mountains as far as Sayula, where the coach stops for the night. Soon after leaving Santa Ana we pass along the border of a reedy marsh, and notice a lovely Crinum, with pink and white fragrant flowers growing amid the reeds. Most of the way, however, the bottom of the valley is a saline sink, now perfectly dry and gray with incrustations of salt, and glimmering, in mirage, under the heat of the sun. About the sandy margins of the sink are straggling thickets of mesquite; outside of these, for a short distance, appear a few common Salt plants.

A prominent feature in the landscape about Sayula, which stands in fertile fields at the head of the valley, is a wild Fig, Ficus fascicutata, Watson. Its horizontal, far-reaching branches make it a remarkably flat-topped tree, and as it grows to immense size and lines the roadsides in the neighborhood of the city, the Fig avenues of Sayula are among the grandest of Mexican avenues.

In the early morning, because we are descending to more heated levels, we go on to Zapotlan with two relays of mules, first crossing a range of hills, then rolling through the deep dust of a valley. At Zapotlan the stage-road ends. Between this city and Colima, some sixty miles, lie lava-beds and deep barrancas, over which the traveler must pass in saddle. But I cared not to go on to Colima in a hurry. At Zapotlan I found myself in the midst of a charming region. The view on the north was bounded by the Sierra de Tapalpa, over which we had come. Close beside the town, on the east, runs a range of hills more or less completely covered with Pines. On all other sides of the town lies a rich valley, the lowest portion of which, on the north-west, is occupied by a lake some six miles broad. In the south-west rises the Nevado of Colima, its summit peak of bare rock, nearly 14,000 feet altitude and fifteen miles distant, overtopping Pine-clad ridges and spurs several miles in extent. Its twin peak, the Volcano of Colima, since it stands behind the Nevado, and is of less elevation, is not visible from Zapotlan. A few miles south of the city extend beds of lava discharged from craters on the edge of the valley, at the foot of the Nevado. Thus we find here the various elements of beauty in a landscape, and the diverse conditions to make a region of much botanical interest; and to make life in this sunny valley all the more agreeable, there were blowing over it daily, during the period of my stay—the hottest part of the year—fresh breezes from the sea and from the great mountain.

Waiting upon the chief magistrate with an official letter, on the afternoon of my arrival, I at once had a friend most courteous and kind, who found for my use a most eligible room in a house on the principal plaza (a house whose flat roof offered facilities for drying plants), and who made way for my roaming the region without hindrance or peril.

One of my first finds was the tree, Ehretia cordifolia, Rob., the most common and conspicuous tree of that valley. Yucca Schottii, common about the outskirts of the town and in roadside thickets, as well as among the lava-beds, was a striking plant, because then in full bloom, its white flowers being borne in panicles two or three feet high. It is an arborescent species, with many slender, erect branches. The hills and the lava-beds yielded me several novelties. But May here is the month of extreme aridity, and few plants were in growth or flower.

From the great Nevado, however, I hoped for better results, so, with haversack well filled, with canteen, portfolio and mackintosh, I set out one morning, tramped across the valley, entered a wide cleared cañon, and followed it up well into the flank of the mountain, where I found a ranch, to whose owner I had brought a letter. It was only for a trusty Indian guide that I asked, but the proprietor, with true Mexican courtesy, himself also accompanied me. It was three o'clock in the afternoon when we left his house and took a faint trail on the steep mountain-side, under heavy forests. It was nightfall when we gained the summit ridges and beheld the rocky peak still two miles away. A cold wind was sweeping over the mountain, and as our clothing was damp from

perspiration we were glad to find shelter in an unused hut of the ice-gatherers, formed of small poles neatly tied together, and covered, roof and sides, with a thatch of coarse grass. Two Indians had come before us to pass the night there, and had started a fire in the centre of the hut, so we all lay down together and passed the long night between sleeping and waking and keeping up the fire. When day dawned I was out in the frost, collecting on the spring-banks of a brook Senecio Tolucanus, D.C., var. modestus, Sch. Bip. After breakfast we started along a path leading to the peak, frightening, as we proceeded, groups of black cattle grazing the grassy openings of the mountain-top. Here were common great clumps of Lupinus Mexicanus, sometimes woody below and ten feet tall; Pentstemon campanulatus; Euphorbia campestris and Crypsinna stricta, the largest of bunch Grasses. Here and there showed the scarlet of Castilleia lithospermoides or C. tenuiflora. On the mountain-crest beside the peak was found Vaccinium geminiflorum, H. B. K., then in flower; an occasional plant of Draba Jorullensis, H. B. K., in fruit, and an immature Arenaria, apparently. On the ledges was a prostrate Juniper, and this short list was all I noticed there. The sharp splintered peak appeared perilous to climb, and altogether uninviting to a collector. From a rocky knob beside it we looked off southward upon the volcano, a dry cone with rounded top, in which no crater was visible. It stood below our level and but two or three miles distant. Beyond the volcano and across valleys at its base, which were green with irrigated cane-fields, lay, in blue haze, serrated ranges, to hide the view of the coast-line.

Thus, the Nevado of Colima, which I had long anticipated exploring, proved disappointing, because less alpine in character than I had expected to find it. A scattered forest of the Montezuma Pine, one-third of its trunks dead and its branches whitening, reaches to the base of the summit rocks. All the summit is covered with volcanic ashes and scoria, which do not offer conditions favorable to plant-life. Though called the Nevado, or Snowy Peak, there was no snow on the mountain at the time of my visit. My guide assured me, however, that May is the only month in which snow is usually absent, since, in the season of rains, any storm which will fall in the form of rain below, may for a time whiten the upper peak with snow.

Turning back before midday, I collected Arcenthobium robustum, Engelm., a parasite abundant on the stunted Pines of the higher elevations, noted Alnus acuminata, Salix lasiolepis, Arbutus varians, and various Oaks mingling with the Pines from a little below the summit, lingered for an hour about the base to gather from Oak-trees specimens of another fine parasite, Loranthus microphyllus, H. B. K., and then pushing back to town with my back-load of specimens, reached home at the close of day. Could I have paid another visit to this mountain in August, as was my intention when I left it, and especially could I have explored certain wet ravines on its sides, somewhat better results would, doubtless, have been my reward; yet the sparseness of vegetation on the loose dry soil, and the absence of dead stems, plainly told of a meagre flora, and this estimate of the vegetation of the Nevado was confirmed by a later ascent upon its opposite side.

Charlotte, Vt. *C. G. Pringle.*

Monœcious or Polygamous Poplars and Willows.

In connection with the recent notice in Garden and Forest (p. 128) regarding the presence in this country of the staminate flowers of Salix Babylonica, it may be worth while to call attention to an occasional variation in the manner of flowering of some Willows, and sometimes of their near allies, the Poplars. Mr. Thomas Meehan has published in the *Proceedings of the Academy of Natural Sciences of Philadelphia for 1893*, p. 289, a note on a monœcious case of Populus tremuloides, in which distinctly male and female catkins were found separate, but on the same plant, while other catkins bore both stamens and pistils on separate scales on the same catkin. Last season two wild plants of Populus tremuloides in the Arnold Arboretum were noted as bearing similar monœcious flowers, and herbarium specimens of these were preserved. The trees were small and growing on a dry, gravelly bank, and besides the monœcious flowers there were some which were apparently perfect. Both staminate and pistillate catkins occurred separately, and there were other catkins with both distinctly staminate and pistillate flowers intermixed on the same catkin. A good many flowers were each provided with an apparently well-developed pistil, which was accompanied by from one to half a dozen or more stamens. Sometimes the anthers of these flowers seemed imperfect; but in most cases they appeared quite normal, dehisced regularly, and were well filled with their characteristic pollen. Occasionally a catkin was found with scarcely a dozen pistillate flowers, all the others being staminate. But in most cases the pistillate flowers were most numerous in the catkin. Sometimes the basal half of a catkin showed a tendency to bear almost purely staminate flowers, while on the terminal half they were nearly all pistillate, but generally they were intermixed. Fully one-third of all the catkins were purely staminate. On a pistillate tree, laden with catkins, a very few small belated male catkins were found. These plants were particularly observed on the 28th of April, by which time a large proportion of the male flowers had shed all their pollen. An examination of the same plants this season showed similar variations from the normal mode of flowering.

In vol. iii., 1878, page 51, of the *Botanical Gazette*, Mr. George E. Davenport records similar observations on this Poplar at Medford, Massachusetts. He also states that he was told by Professor Goodale that Mr. Bailey (presumably Professor W. W. Bailey) had found similar flowers on Populus balsamifera at Providence, Rhode Island.

In the note referred to, Mr. Meehan remarks: "Changes of sexual characters in dicœcious plants are not uncommon, but have probably not been recorded before in connection with Salicaceous plants. The author has a large number of species of Willow growing on his grounds. All these were subsequently examined carefully, but no similar case of sexual change was found among them."

Monœcious cases among Willows, however, are not considered as very rare by those who have had occasion to carefully and frequently study these plants. Very often both male and female flowers are found on the same catkin; sometimes they are on different catkins on the same tree or shrub. There do not appear to be many published notes of such cases in this country, perhaps the most recent being by Mr. C. L. Anderson in *Zoe*, vol. i., 1890, page 41, which refers to a supposed hybrid between Salix Babylonica and S. lasiandra in California.

That monœcious or polygamous cases among Willows have long been known, is indicated by the fact that Linnæus gave the name of Salix hermaphroditica to a species or form. In Host's celebrated monograph of Salix, published in Vienna in 1828, there are excellent figures of S. mirabilis (fig. 46) and of S. montana (fig. 73) exhibiting the deviations from the normal arrangement. These figures show both sexes on the same catkins or branches. Host also refers to the peculiarity in other species both in the monograph and in his *Flora Austriaca*, published in 1831. A reference to the monœcious habit in S. Hoppeana is made by Willdenow in the *Species Plantarum*, published in 1805; and Sir J. E. Smith, in the *English Flora* (vol. iv., 1828), mentions several species which bear both staminate and pistillate flowers on separate catkins on the same plants or in the same catkins.

There are numerous other references in the literature of European botany to this variation in the habit of flowering of the Willows. The subject is an interesting one to note, and any careful observer is liable to come across such examples when taking spring rambles where shrubby Willows are plentiful.

Arnold Arboretum. *J. G. Jack.*

Plant Notes.

The Date Palm.

THE Date Palm, like the Cocoanut, must find a place with the half-dozen trees which are of most value to the human race. It is the type of Phœnix, a small genus of northern Africa, southeastern Africa and tropical Asia. The flower-spikes of all the plants of this genus grow from among the long pinnate leaves and bear unisexual flowers, the two sexes being produced on different individuals. The flowers have a cup-shaped, three-toothed calyx, a corolla of three petals, their edges valvate in the male and overlapping in the female flower. In the former there are usually six stamens with abbreviated filaments and narrow erect anthers; in the latter there are three distinct ovaries with sessile hooked stigmas. One of the ovaries only develops into a fruit, which is fleshy and one-seeded, that of Phœnix dactylifera being the date.

The Date Palm, whose port and general appearance is displayed in our illustration on page 165 of this issue, is a tree sometimes one hundred to one hundred and twenty feet in height, with a trunk covered with the persistent bases of the leaf-stalks and often surrounded at the foot by a dense mass of root-suckers. The trees flower in March and April, and as the male trees are generally less numerous than the females, the flowers of the latter are often fertilized artificially. In some parts of India and in Arabia this is done before the flower-sheaths expand, an opening being made in the sheath of the female inflorescence, into which a few pieces of the male panicle are inserted. The fruit ripens in the autumn; and through long cultivation a number of varieties, differing in the color, shape, taste and size of the fruit, have been developed in northern Africa and central Arabia, which is supposed to produce the best dates.

The home of this tree is believed to be the whole arid region from the eastern Canary Islands on the west, through the African Sahara, to the lower basin of the Euphrates. The Date Palm was thought by Brandis to have been introduced into India at the time of the first Mohammedan conquest of Sindh, in the commencement of the eighth century.

The Date Palm flourishes in the dry regions of northern Africa and western Asia, where it is exposed to excessive heat during the day and not infrequently to frost at night, although it cannot live without a certain amount of moisture in the soil. In Europe it is cultivated in Spain, where it was introduced by the Arabs and where it produces fruit, and on the Riviera in France and Italy, although it rarely fruits there. In southern Italy, Sicily and Greece, the Date Palm is now not uncommon, although the climate does not enable it to produce fruit of good quality. On the island of Delos, before Homer's time, Date Palms sacred to Apollo had been planted; in Syria and Palestine the cultivation of this tree is older than the earliest historical records; and on the southern shores of the Caspian it was also once largely cultivated. It is cultivated and now reproduces itself in Sindh, in the southern Punjab, and in the Indian trans-Indus territory. It does not, however, thrive in Bengal, where probably both the heat and rainfall are too great for it.

Not only does the fruit of the Date Palm supply millions of the human race and their beasts of burden with their chief article of food, but from its leaves the huts of many tribes are entirely constructed. The fibre which surrounds the base of the leaf-stalks is manufactured into ropes and coarse cloth, and from the leaf-stalks, crates, baskets, brooms and walking-sticks are made. The centre of the young leaves is eaten as a vegetable, and from the sap, to obtain which, however, the tree must be destroyed, an intoxicating beverage is prepared.

The wood of the Date Palm is rather light, but is used in house and bridge building, and for various other purposes, although the fruit-bearing trees are so valuable that only the males or trees past the productive age are cut for timber.

The soil and climate of many parts of southern California are well suited to develop the best qualities of this tree, and it is not improbable that the production of dates will soon become an important and profitable California industry. The Date Palm was first planted in California nearly a century ago by the Jesuit priests who came into the state from Mexico, and their trees may still be seen in the garden of their mission-house at San Diego; and as long ago as 1877 dates raised in California, and produced from trees which were only twenty years old, were exhibited in San Francisco. An account of the introduction of the Date Palm into California, with precise directions for its cultivation and requirements, will be found in the second edition of Wickson's excellent treatise on *California Fruits and How to Grow Them.*

The Date Palm is hardy in some parts of Florida and on the islands of the Georgia coast, and large plants may be seen in the gardens on Cumberland Island, where they have been growing for at least fifty years. The climate, however, of the south Atlantic states is so wet in summer that the Date Palm will never be cultivated in any part of them except for ornament or as a curiosity.

Foreign Correspondence.

London Letter.

NYMPHÆA PARKERIANA.—This is a white-flowered, very fragrant species, which was discovered in British Guiana by Mr. C. S. Parker, an amateur botanist and collector, in 1824, and was named in compliment to him by Lehmann in 1853. It has the habit and foliage of N. odorata; indeed, it was considered to be a form of that species until Lehmann named it as above. The flowers are nearly as large as those of N. alba, pure white, with bright yellow stamens and a sixteen to twenty rayed stigma. N. Parkeriana was cultivated at Kew at least ten years ago, and it was obtained from Kew by Mr. E. D. Sturtevant, of New Jersey, but without name. He flowered it, fell in love with it, and then lost it. The same fate befell it at Kew. Thanks, however, to Mr. Jenman, of Demerara, seeds of it have lately been secured and sent to Kew, and a portion of the seeds has been distributed. We are likely, therefore, to possess this species in abundance soon.

TECOMA SMITHII.—Some time ago I noted in one of my letters the introduction and flowering of this plant at Kew, where it has proved to be a first-rate, free-flowering, handsome little shrub for pot-culture in a cool house. In a note written for the *Gardeners' Chronicle* I appealed to Australian growers for the true history of the plant, as it had been sent to England from Melbourne, and was said to be a hybrid between T. Capensis and T. velutina, a variety of T. stans. Mr. W. R. Guilfoyle, Director of the Melbourne Botanic Garden, writes that the plant is certainly a hybrid between the two species named, and that with him it always comes quite true from seeds. He says: "Scores of seedlings have been raised from the plants in our botanic gardens, which, with the exception of a slight variation in the foliage, are exactly like the parent-plant. The flowers do not vary in the least degree. T. Smithii flowers for fully nine months in the year." It is remarkable that a plant raised from two well-marked species, and showing characters distinct from both, should come true from seeds.

The *Amateur Orchid Cultivator's Guide Book* is the title of a little work on a now well-worn but progressive subject, by a man who is a successful grower of Orchids, having charge of the fine collection owned by Mr. Chamberlain at Highbury, near Birmingham. The book is cheap (half a dollar), and it is good and practical as far as it goes, which is not much further than the amateur seeking for plain instructions would desire him to go. Mr. Burberry has had considerable practice, and his teaching, as set forth in his book, bears evidence of his all-round knowledge of garden Orchids. It also shows, unfortunately, evidences of hasty writing and proof-reading, and it will not bear looking into

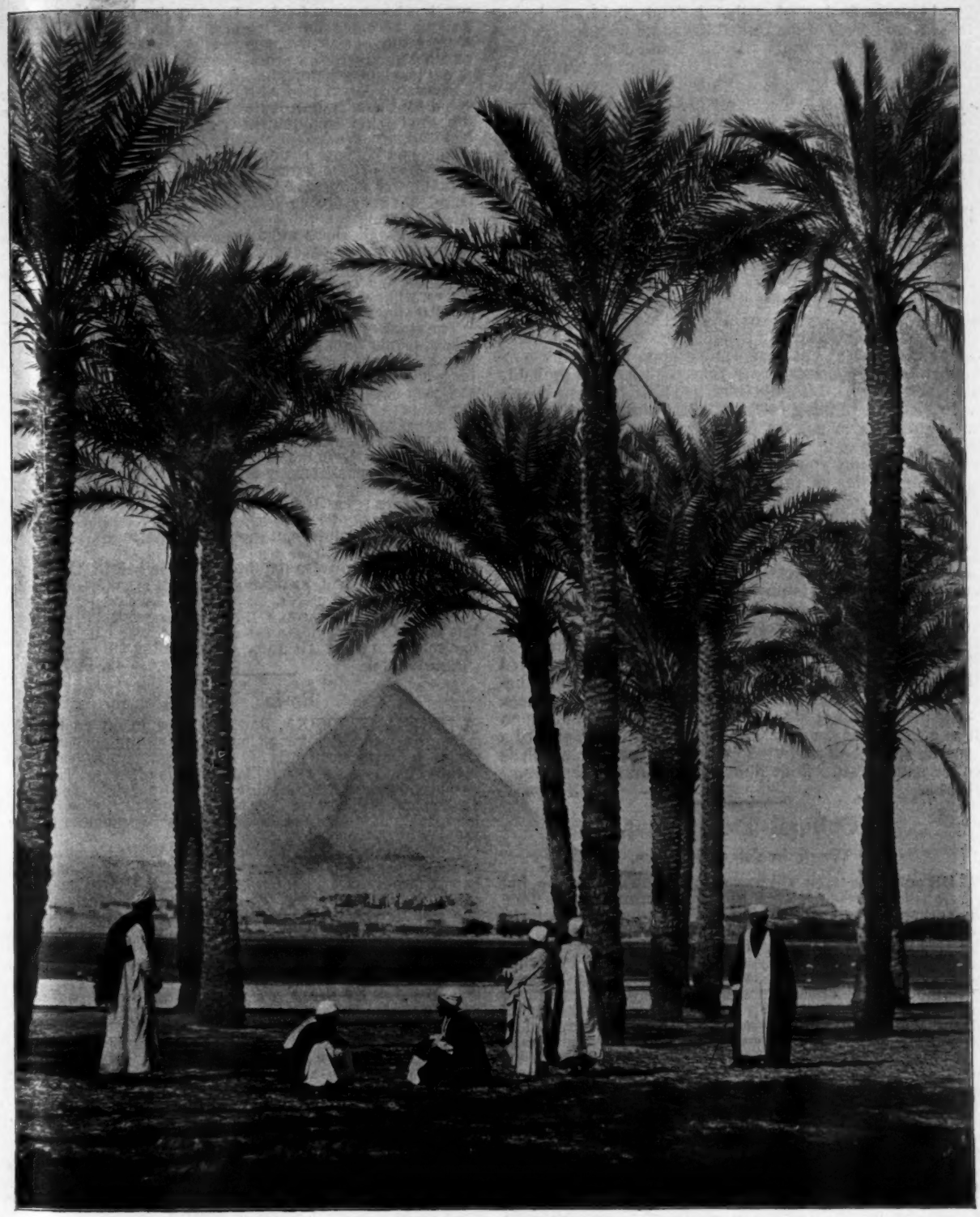

Fig. 31.—The Date Palm in Egypt.—See page 164.

too closely by the stickler for correctness of nomenclature. These, however, are slight blemishes which any one can see or need not see. The instructions for the cultivator's guidance show no such defect.

Market-gardening in the South of Ireland.—The Irish Land Commission is endeavoring to encourage and develop market-gardening in the most favored counties in Ireland, especially Cork, Waterford and Kerry, where land is good,

the climate comparatively mild and labor cheap. There are good reasons for believing that Ireland could supply the less favored parts of the United Kingdom with a large proportion of the early fruits, vegetables and flowers which are now imported from the countries bordering the Mediterranean. The experiment is worth trying. I have seen some of the best gardens in the county of Cork, and their contents suggest a climate almost as mild as that enjoyed in the south of France. What Mr. Dorien Smith has done for the Scilly Isles in developing their land resources may, one would think, just as easily be done for south Ireland.

Tree-pruning.—The belief that trees when once stuck into the ground will look after themselves is so firmly established in this country that it will take a considerable number of editions of Monsieur Des Car's little book to eradicate the belief. It is poetical to declare that nature is the best gardener and forester, but practically it is utter nonsense. Trees, and especially exotics, generally grow awry if they are not looked after. Tree-pruning cannot, however, be done properly by an ignoramus; the character of the tree and the effect of pruning upon it must be comprehended by the practitioner, otherwise he will probably do much injury. I should like to show to those people who curse the pruning tools and those who preach pruning, a number of trees not far from Kew, which have grown into ugly cripples through neglect of the art of pruning, and, on the other side, young trees which are perfect in consequence of judicious pruning done in good time. Even large once-neglected specimens are hopeful after having undergone a severe course of lopping and pruning. A London publisher (Rider) has lately issued an edition of A. Des Car's excellent little *Treatise on Pruning Forest and Ornamental Trees*, which was translated by Professor Sargent some years ago, and is now recognized by all who know what a tree ought to be, as the most useful treatise on this subject. It has been received with gratitude by some authorities here and severely condemned by others. The value of the book cannot be gauged by one who has never tried the effect of careful pruning, but condemns all pruning because he has seen trees mutilated by so-called pruners. Some people cannot bear to see a tree cut; they look upon it as a species of cruelty. Others appear to have started a crusade against all art in the garden, except that which is called nature's art. Both kinds of objectors are hopeless.

London. *W. Watson.*

Cultural Department.

Work in Glass Houses.

THE outdoor garden will now demand much attention, but it will not do to neglect the indoor department at this time, for spring is the recuperative season for most foliage-plants, and is also the most suitable time for propagating, potting and pruning this class of plants. For example, specimen Crotons and Ixoras, grown unshapely, should be corrected by severe pruning a few weeks before repotting, so as to allow the fresh growth to start before the roots are disturbed. Both of these plants are improved by hard pruning, provided they are treated liberally afterward as to heat and moisture. Syringing two or three times a day in bright weather helps the young growth.

The Ixoras grow best in a light soil. Some peat in the compost is an advantage; they can also take up a reasonable quantity of manure, in liquid form or mingled with the soil. The pruning of Crotons intended for outdoor bedding this summer should have been done some months ago, in order to secure a firm, strong growth on the plants before the time for planting out.

A few plants of Clerodendron Balfourianum of moderate size, trained on balloon-trellises, make admirable specimens for conservatory decoration during the summer and autumn. To secure full crops of bloom a period of rest is required after their growth is made; the plants should be in full light for some weeks, and kept without water, until all the foliage has dropped off. When the new growth is well ripened by this treatment the plant may be started again. Any worthless wood should be trimmed out and the long shoots neatly trained, beginning at the lower part of the trellis with a long shoot, and gradually training it around and upward; dormant shoots of climbing plants should never be trained downward, as they do not thus break away freely. To start the plants a thorough soaking of water and frequent syringing is required, and a temperature of sixty-five degrees. A small quantity of guano or other good fertilizer proves beneficial when the shoots are about two inches in length.

Specimen Allamandas also thrive under the treatment indicated for Clerodendron Balfourianum; thorough ripening of the wood induces a much better crop of flowers than can be had if the plants are kept growing throughout the entire year. Allamanda Williamsii and A. nerifolia are excellent for small collections. These varieties furnish smaller plants than A. Schottii and A. Hendersonii; the flowers, also, are not as large, but they are so abundant as to make up for their smaller size.

Gesneras, Gloxinias and other flowering bulbs for summer decoration of the conservatory will also need attention. Most plants of this character are not improved by exposure to strong sunshine, and Gloxinias especially do not like water on their leaves, while they enjoy a liberal supply at the root and also a moist atmosphere.

The stock of Ficus, Pandanus Veitchii, Aralias and other foliage-plants should be increased now. The most shapely young plants of Ficus elastica are secured from top-cuttings, for while single-eye cuttings may be readily rooted at this season, they never produce as well-furnished plants as those from top-cuttings.

The best specimens of Pandanus Veitchii are grown from short, stocky cuttings, a drawn-up cutting usually retaining that characteristic in the future plant, besides taking longer to root. Artocarpus Cannonii is a highly ornamental member of the Breadfruit family and deserves a place among the stove foliage-plants; its dark, purplish leaves contrast well with some of the lighter, variegated plants; reasonably easy to propagate from cuttings, it should become much more popular.

Aphelandras will also require potting on before they are too much impoverished, or the foliage is apt to suffer before the flowers appear. I prefer, however, to have young plants of Aphelandras each season, rather than carry over old stock, for this is liable to become infested with scale, and it is difficult to clean them without bruising or scratching the foliage.

Holmesburg, Pa. *W. H. Taplin.*

Spring Flowers.

MORISIA HYPOGŒA, flowering now in my cool annex, is a neat little alpine plant from the mountains of Sardinia. It forms dense tufts of bright green, narrow leaves two inches long, incised or cleft like Dandelion-leaves. The flowers, borne freely on very short stems, are bright clear deep yellow, and at this season the plant is most attractive. There is probably little doubt of its hardiness and usefulness for the rockery or alpine garden.

Fritillaria Yoryi Barzali is one of Mr. Whittall's new finds, which as yet has only this provisional name. This little plant is only three inches high, but bears a large bell-shaped flower contracted at the opening. The flower is over an inch in diameter and deep clear yellow, brighter than that of F. aurea. It is marked in dots of rich red inside and out. The dwarf Fritillarias are interesting little plants for rockeries or choice borders, where the bulbs will not be likely to be disturbed and lost when they are resting. Mr. Orpet has lately called attention to F. aurea in not too high terms. F. Meleagris, the Snake's-head Fritillary, is the well-known checkered sort, and a great favorite in gardens. F. tristis, the Mourning Fritillary, is of the richest velvety brownish-black. It is just coming into flower. F. Dalmatica, also just opening, is a grayish-green flower marked with red, and is not very handsome. There are several forms of F. Armena in the garden, the prettiest one being of a dull wine-color, with cloudings of yellow. Our native yellow Fritillaria, F. pudica, is figured in the current *Meehans' Monthly* with a colored plate. F. biflora is a Californian species yet to flower, which appears to me a little gem. Its coloring is in the greens and reds of the exotic Cypripediums. It is, however, a very small flower. The other California species I have not seen. It is curious that the greater Fritillary, the Crown Imperial, should have been a favorite in gardens so many years.

Iris Caucasica is this week's addition to spring-blooming Irises, and planted near I. orchioides it emphasizes the fact that the flowers of this species are dull and washy and a mere attempt at yellow. These Irises are both of the same section, and seem to prosper under the same conditions of somewhat heavy soil and full exposure. I. orchioides is so much supe-

rior in its rich yellow, and so much more free in flower, that it is greatly the best garden-plant.

Anemone blanda has been very late in flowering this season, scarcely giving a sign till early March. It has sometimes shown color in the first week in January with me, and usually appears after the first few sunny days of the year. The beautiful star-like flowers, expanded over the bronzy, finely cut leaves, are among the most cheerful blossoms of the early year. Among them are pure whites and various shades of blues, or, properly, purples. The deep, pure-colored, Violet-blue form is usually most valued.

The winter Aconite, Eranthis hyemalis, has also been late this year, to the extent of not flowering at all. In fact, there seems but a bit of it left in the border. Perhaps this is a reliable flower in many places, but it is never happy with me, and rapidly disappears. The newer E. Cilicica appears, in less sunlight, to be making some progress, but has not flowered this season. Yellow flowers are so bright and cheerful that those which appear in the early year are especially valuable, and the winter Aconite could never be too plentiful in the border.

Other low-growing plants which are now in flower are Aubrietia Leichtlini, Arabis alpina, hybrid Primroses and various Grape Hyacinths. The trailing plants of Aubrietia are so pretty and bright at this season that it is a pity that their flowers so soon fade in the sunlight. Hybrid Primroses have been, of course, in flower sparsely from the late fall, but at this season the clustered leaves are being gradually hidden under the charming flowers—that is, the flowers are charming if a careful selection has been made from the seedlings and the weak dull-colored ones are resolutely discarded.

Elizabeth, N. J. *J. N. Gerard.*

Cannas.

FEW flowering plants combine so many good qualities as the modern French Canna. The introduction of Madame Crozy marked a decided advance and placed them among the most useful plants, either for the garden in summer or the greenhouse in winter. Several varieties planted out last spring had bloomed continuously during the previous winter without a rest or check of any kind, and continued to do so throughout the succeeding summer, increasing in size and vigor. When the autumn frost came they were potted and placed in the greenhouse again, and kept at a night temperature of fifty-five degrees, Fahrenheit. Here they have since made a magnificent display, without any abatement. No rest seems necessary for these Cannas, as was required by the older kinds. Madame Crozy is still, in my opinion, the best Canna of its color yet distributed for all purposes. Its general habit, free-blooming qualities and compact panicles of scarlet and gold flowers altogether make up a standard of excellence by which future introductions will surely be judged.

A clear yellow Canna with large flowers is still wanting, but this need will doubtless be filled. According to reports of the new Charles Henderson, its flowers will eclipse that superb crimson, Alphonse Bouvier. President Carnot has bloomed very freely all winter. It is one of the best dark-leaved varieties. The flowers are unusually large for this class and of a good salmon-red color. I have only one plant, but at no time during the winter has it been without some bloom, although dark-leaved varieties are generally considered shy bloomers. Among recent introductions no variety has attracted so much attention as Paul Marquant. The flowers are very large, of a salmon-red shade, with a pleasing satiny lustre. The habit is very dwarf and free, and it makes one of the best pot-plants, every shoot bearing flowers. Captain Suzzoni, light yellow, spotted, and Florence Vaughan, dark yellow, spotted, are with me of about equal value, and the best for outdoor planting of these shades. Souvenir de Francois Gaulin, of less recent introduction, of the yellow type, is the best winter-blooming variety of this class which I have found. The flowers are smaller and not quite so lustrous, but still effective when seen in quantity.

Wellesley, Mass. *T. D. H.*

Begonias.

BEGONIAS are in general favor as winter-blooming plants for their grace, beauty and diversified character. We find it more practicable to raise a new stock every spring than to hold over old plants, which often become leggy. Cuttings made now will root freely. They should be grown along during the summer in under-sized pots, with a generous shift late in the autumn, for if grown to their limit from the start the plants become less compact and are larger than it is desirable to have them. A good light compost, not very rich, suits them well. When the natural soil is heavy a little leaf-mold and sharp sand should be added.

I find that the most useful varieties are: Incarnata, a bushy plant with pink flowers. Bismarck is rather shrubby, tall, with clear pink flowers. It is a continuous bloomer from the cutting-bench onward. Paul Bruant has short, succulent stems and handsome foliage, and makes a good pot-plant about a foot high. The flowers are bright pink, the male flowers extremely fugacious, and the handsome female flowers persistent and arranged in drooping panicled cymes with green-winged capsules. Verschaffeltii is a rather coarse-growing hybrid with a thick, succulent stem. It is a seasonal bloomer, akin to Manicata, and is at its best in January. The erect branching cymes are often more than three feet long, a perfect mass of pearly-pink flowers, and it is a striking object in bloom; all the Semperflorens group are free bloomers. Sutton's Perfection is an extremely handsome white, and is a splendid bedder. Of the more or less ornamental-leaved varieties, Crestneri, Olbia, Scharffiana, Argentea-guttata, the variegated Manicata, President Carnot and Madame De Lesseps are all excellent.

Our old plants are pruned and used very effectively for odd shady corners, and some very nice work can be done with them. An attractive group of a sub-tropical character can be made with Bismarck, Guttata, Metallica, Diadema and two or three varieties of Semperflorens, including the yellow-leaved variety, some Fuchsias, notably the yellow-leaved Wave of Life and Sun-ray, with a few Dracænas of either the Draco, Australis or Fragrans type, a few Grevilleas and Abutilon Eclipse.

Wellesley, Mass. *T. D. H.*

Hydrangeas on single stems.—This is a useful way to grow Hydrangeas, and this is a good time to strike the cuttings. Strong young shoots, with no appearance of flower-buds on them, should be selected, and when rooted should be placed in three-inch pots and shifted on until they are in seven-inch pots. They must be kept growing freely all the time in a greenhouse temperature, and they do best in a mixture of two parts loam, one of leaf-mold and one of sand, with a little dried manure or ground bone added. All side shoots should be removed as they appear, and when the flower-buds are set the plants should be fed until the blooms are about half-expanded. The result should be nice, useful plants, from fourteen to eighteen inches high, with single flower-heads measuring, in many cases, over thirty inches across.

Azalea Indica.—These plants are now past flowering, and potting should be attended to at once if it has not already been done. They should be thoroughly cleaned before beginning to pot them, although this work may be done afterward. Thrip and red spider, the enemies of Azaleas, can be kept in check by occasional syringing with a solution of Fir-tree oil. Mealy bug and scale often lurk beneath the loose bark, which should be carefully scraped off with a small piece of wood or some substance not apt to injure the under bark. The pots, also, should be perfectly clean. The plants require to be well drained, and in shifting the roots of the plant should be disturbed as little as possible. A. Indica does best in a mixture of two parts fibrous peat, well broken, two parts leaf-mold and one of sand, the fresh soil packed firmly about the plant. With the house kept moderately warm and the atmosphere moist, growth will be encouraged, and gradually more air should be admitted, as the plants become established and started. A little training greatly increases the beauty of Azaleas, and if regularly attended to every season this work is but little trouble. Of many forms into which the plants can be trained, I like a half-ball the best, as this form shows more of the plant at one time. After the growths are made and the buds set, the plants should be plunged out-of-doors in a bed of ashes; the holes should be made large enough for pieces of brick to be placed in the bottom, to ensure free drainage.

New Dorp, N. Y. *William Scott.*

Winter Apples.—Proportionally few of the seedling apples which appear from time to time are long keepers. It is a curious fact that, desirous as growers and consumers in all sections are for these late-maturing fruits, we have collected, from foreign and native sources together, considerably less than 200 varieties which can be classed as winter fruit in any part of the country, while the apples, otherwise valuable, which will keep until April south of New Jersey, hardly reach thirty named kinds. And yet the ready critics are loudly attacking the Russian Apples which have been imported within the past twenty years, because no large number of them have yet shown themselves to be all-winter fruit. It will require at

least a dozen years more to settle this question thoroughly; and, unless I am much mistaken, it will turn out that, in the section for which they are best adapted, these north European Apples will show as large a proportion of winter sorts as those which have been longer known. Meantime, it ought to be everywhere understood that valuable all-winter apples of any origin are in number relatively few, and are likely to remain so.

Growing Seedling Fruit-trees.—New varieties, some of marked merit among them, appear from time to time, mostly of chance growth; but there has been, in this country, very little systematic planting of the seeds of our tree-fruits with the object of securing improved sorts. Perhaps the chance growths do as much for us as systematic work would do, in our middle and southern sections. Certainly, it is to chance that we owe most of our leading native varieties. The number known to be otherwise produced is very small, with the exception, perhaps, of Pears and Cherries. In the "cold north," however, the good new varieties adapted to the rigors of the climate present themselves too slowly to satisfy the planter; and already there are a considerable number of experimenters in this line. The pioneer was Mr. Peter M. Gideon, of Minnesota, and his energy and perseverance have been well enough rewarded to encourage his successors to renewed and more systematic efforts. It is not a difficult matter to grow seedlings from the more promising "iron-clads," native and foreign, which at three or four years of age may be planted out along the fences and left to show what they can do. The more promising selections made from these can easily be given a better chance by grafting, and their good qualities determined from the result. This work is especially commended to our experiment stations, where, also, the more skilled work of crossing and hybridization can be followed to valuable results.

Newport, Vt. *T. H. Hoskins.*

Correspondence.

Lilacs.

To the Editor of Garden and Forest:

Sir,—Will you be kind enough to name a dozen of the best Lilacs for shrub plantations?

Morristown, N. J. *S.*

[Most people who speak of Lilacs have in mind only the different varieties of the common garden Lilac, Syringa vulgaris, with, perhaps, the Persian and Chinese Lilacs, S. Persica and S. Chinensis. Nurserymen sell many forms of S. vulgaris, some of them double, but we know of none better than Charles X., one of the darkest; Philemon, a rich purple red, and Marie La Grange, a pure white. There are other good varieties named in the catalogues, and Monsieur Lemoine, of Nancy, has raised an interesting series of hybrids between different species. S. oblata is not a new species, but it is by no means common in gardens. In its botanical characters it is closely allied to the common Lilac, although it flowers ten or twelve days earlier than that species. We have often spoken of its thick leathery leaves, which remain on the bushes late in autumn and sometimes turn to fine colors, and of its freedom from mildews. The flowers resemble those of some forms of the common Lilac, although the species are easily distinguished by the form and texture of the leaves. The Persian Lilac is well known in old gardens as a graceful shrub, and the Chinese Lilac, which is rather larger and intermediate in form between S. Persica and S. vulgaris, is admirable in habit and altogether one of the most desirable of hardy shrubs. Both of these have forms with white as well as lilac-colored flowers. Their season of bloom is a little later than that of S. vulgaris.

There are several other Lilacs, however, nearly a dozen species altogether; some of these are first-rate garden-plants, and others which have not yet been cultivated. We have figured the best of these in Garden and Forest and called attention to their merits as they have flowered in the Arnold Arboretum. But new shrubs gain recognition slowly, and these Lilacs are planted very sparingly throughout the country. The seeds of S. Japonica were received in the Arnold Arboretum as long ago as 1876. The plant grows rapidly with a straight, tree-like trunk and upright branches. The older specimens are now considerably more than twenty feet high, and are perhaps fifteen feet through. The immense cream-colored panicles of flowers from eighteen to twenty-four inches long, standing high above the foliage, make this tree a very conspicuous object when it is in flower in early July. S. pubescens flowers at the same time as the earliest varieties of S. vulgaris. The flowers are rose-colored, fading to white, and very fragrant. This is certainly one of the best hardy shrubs of recent introduction. S. villosa is a more robust plant than S. pubescens; it bears abundant flesh-colored, bad-smelling flowers, which appear in large, compact, shapely clusters after the common Lilacs have faded. The last two species have long tubes like S. vulgaris, S. oblata, S. Chinensis and S. Persica. The leaves are pale on the under surface. S. Japonica belongs to the section with very short and corolla tubes, and so do S. Pekinensis, a small tree of graceful habit of northern China, and S. Amurensis, of the Amoor country. These all produce ample clusters of creamy-white flowers, with the disagreeable odor of the flowers of the Privets.—Ed.]

The Untimely Frost.

To the Editor of Garden and Forest:

Sir,—The effect of the March freeze is more apparent on tender Roses than almost anything else, except the Grapes. Large Tea Rose-bushes that were loaded with buds when the freeze came, and which have stood unharmed for many winters, are dead to the ground. A large Banksia Rose on my piazza, covering a space fifteen by twenty feet, is dead. A Maréchal Niel, on the same piazza, loses much wood, while Gloire de Dijon, a little further along, on the same piazza, too, where the morning sun did not strike it, is little hurt. The Polyantha Roses are killed to the ground. My Figs, that I hurriedly bent to the ground and covered with soil, did not lose a leaf, and the young fruit is all right. Peaches are entirely lost, but I find many Plums still sound. Some good Apple-blooms have come out since the freeze. Grape-vines lose nearly all of last year's wood and are breaking from dormant buds on old wood. This also occurred in 1890, but the shoots from the old wood made fruit. Some Rye that was heading is killed, and early Wheat and winter Oats look very sick. Winter Vetch that was knee-high is dead and brown, and the tops of Corn were cut down. The Oaks are still brown, with dead catkins and young leaves, and have not yet ventured to start again. All vegetables, even Peas and Cabbages, in our gardens were killed, and Onions look as though boiling water had been sprinkled on their tops.

Raleigh, N. C. *W. F. Massey.*

Roses and Cannas at Tarrytown, New York.

To the Editor of Garden and Forest:

Sir,—Some four years ago, as the business of F. R. Pierson & Co. was rapidly outgrowing its limits in Tarrytown, the firm purchased a farm a few miles north of Tarrytown, near Scarborough, and began to erect a group of glass houses devoted to the growing of Roses for cut flowers. At the convention of the Society of American Florists in Montreal in 1891, Mr. Pierson read an essay which gave an elaborate description of his first houses, which had been constructed with an especial view to durability, since he had found that the expense for constant repairs was one of the most serious obstacles to commercial success. These houses, which were built by Messrs. Lord & Burnham, of Irvington, New York, seemed in many respects an improvement on anything of the kind hitherto erected, and their imperishable frame of rigid iron, from peak to foundation, was considered at the time a model.

A few days ago I visited the houses at Scarborough, and found that they had gradually increased, until, instead of four, there were now eight parallel houses facing the south, each more than three hundred feet long, making altogether a structure practically twenty-five hundred feet long and twenty feet wide. What interested me most was the fact that the original idea had developed in various directions until the last house, although in its essentials similar to the first, is manifestly as superior to the first as the first were to structures erected twenty years ago. So much has been written about these houses that there is no need to give a careful account of all their features. It must suffice to say that the houses are thirteen feet high at the ridge, with the long side of the roof toward the south. The "continuous rafters" are of wrought iron, half an inch by three inches in dimension, and joined together at the ridge by cast-

iron brackets. They are bent at the eaves, carried straight down and bolted rigidly to cast-iron posts which are set into excavations in the ground, and about each of which a barrel of concrete is packed, so that practically they are set in a solid block of stone. These rafters, which stand seven feet six inches apart, are tied together by purlins of angle iron—that is, strips of iron bent so as to form two sides of a parallelogram—which are respectively one and a half inches by two inches wide. They are bolted to the rafters to stiffen the frame and hold the cypress sash-bars which are fastened to them by screws. In the house which was completed last the sash-bars and glass extend beyond the wall some four inches, like the eaves of a shingle-roof, off of which the water runs freely, while the glass on the front wall fits up closely under the glass of the roof. There is no plate, no gutter, no supporting brackets and other woodwork to decay or obstruct the light, so that the front bench is not under a shadow as usual, but has full sunshine throughout. In the place of the ordinary plate is a light strip of angle-iron which ties the rafters together, and by means of which each sash-bar is fastened to an upright supporting bar in the front wall. In part of the house even this continuous strip of angle-iron is dispensed with, and the glass itself is trusted to give the necessary stiffness to this part of the structure. A light gas-pipe post supports the long south rafter at its centre.

The clear glass wall, which is thirty inches high in front, the lack of all obstruction to the light at the eaves, the high roof, and the general lightness of the frame-work all combine to give a sense of all-outdoors and abundance of light and air that I never experienced in any other building. Perfect air circulation is secured by a double line of ventilators consisting of thirty-inch sashes hung to the ridge, one on each side of the roof. In this way the house can be aired, whichever way the wind blows, without injurious draughts, and in the summer-time, when both lines are open, the benches are never overheated. Another thing which struck me as a singularly happy device was the construction of the benches. Upon iron posts supporting iron cross-pieces long strips of iron, with a cross-section like an inverted T, are laid longitudinally, and far enough apart to hold an ordinary brick. Common bricks are placed on these supports to form the bottom of the bed, so that there is nothing perishable about the bench except the upright board on the edge, which can be replaced without any trouble when it decays. The brick not only makes a cheap and indestructible bottom, but they can be set close together or a little way apart, as more or less drainage is required, while their porous nature enables them to hold moisture, so that they will be always damp. When the soil is removed they can be turned over or cleaned off with perfect ease.

I need not here enlarge upon the way in which the five benches in each of these houses are arranged so as to secure unobstructed sunshine and free air, and render the care of them easy and convenient. The Roses themselves were the best evidence that the houses furnished conditions in which they delighted, and no one ever saw a more superb growth than was shown by the long lines of Meteors, every plant with thick dark green foliage almost to the ground, and carrying a crop of buds which gave promise of a limitless supply. Mr. Pierson assured me that the plants would be in just as vigorous bearing as they now are when he clears the benches in June, scrubs everything out and fills the pores of the yellow pine flooring and all the other woodwork with crude oil. The first house was carrying its fourth crop, and every piece of wood was apparently as sound as when the house was first built. How the soil is renewed and new soil restored to the benches; how the exhaust steam from the pump is utilized to mollify the temperature of the water applied to the plants; how fertilizers and insecticides are applied in the cheapest and most convenient manner was explained by Mr. Pierson in the essay to which I alluded in the beginning of this letter, and most of the points are on record in vol. iv., page 407, of Garden and Forest.

Mr. Pierson begins to change his Roses early in the season, and is about ready now to discard his old plants for new ones in one house, and he will proceed with one after another until the whole lot is renewed. For this purpose he begins to propagate in January, and keeps on through April. Three months after propagating, the plants fill three-and-a-half-inch pots, and are ready to be transferred to the benches. He believes that Roses for winter cutting should be thoroughly well established, and that those which are set on the benches later than June do not give as good crops during the winter as those that are set earlier. To meet the demands of his market, however, he needs Roses all the year through, as he cuts from 2,000 to 7,000 buds a day, or rather more than a million a year. Different markets, he finds, demand different varieties and different qualities of Roses. Boston, for example, pays rather more for the best Roses, although the market is limited, and it could be glutted with the amount sent to New York. In Boston the greatest demand is for Catherine Mermet and The Bride, while New York selects American Beauty and other big Roses. Meteor is the variety which is grown here in largest quantity, and the firm has become famous for the quality of these flowers. Next in order of quantity sold comes Kaiserin Augusta, followed in order by Madame Testout, Bride and Bridesmaid, with Perle des Jardins, Madame Cusin, Catherine Mermet and Wooton in considerable numbers. This range of houses is given up almost entirely to Roses, but some bulb-forcing is done, one of the north side houses being devoted to that purpose, and some 300,000 plants of Lily-of-the-valley are flowered here annually. There is, too, a nursery for select trees and shrubs on the Scarborough farm which is well worth describing, but I will not trespass on your space for this nor for any detailed account of the interesting things in the original Tarrytown plant, where I saw a lot of Pandanus Veitchii colored with remarkable uniformity, and many other specialties.

Any account of a visit here would be inadequate, however, without some mention of the Cannas with which Mr. Pierson's name has been for some years identified, and which won for him many well-deserved premiums at the World's Fair. In the Tarrytown houses, where most of the early sorts and all the promising new introductions are planted together, one has an opportunity for study and comparison which cannot be excelled in this country at least. Without mentioning the well-known Madame Crozy, Mr. Pierson considers Count Horace de Choiseul and President Carnot the best of the older sorts, although they have never attained the popularity of some other varieties. The first of these is a dwarf plant, with large flowers of a deep carmine, and President Carnot has chocolate-maroon foliage, with good-sized heads of orange-scarlet flowers.

Of the plants which had become sufficiently abundant and cheap to be sold in quantities last year, Alphonse Bouvier takes the lead as the best all-round Canna for bedding. It flowers early, freely and constantly, and its immense clusters of bright crimson flowers are held clear above the foliage. Paul Marquant bears very large flowers, which stand out separately on the truss and are of a distinct apricot or salmon color. It does not grow so tall as Alphonse Bouvier, but is better for the greenhouse. Captain P. De Suzzoni is the best yellow-flowered bedding Canna. The flower is slightly mottled with scarlet, but this does not detract from the purity of the yellow, as is the case with some varieties.

Of the plants which have been introduced for a year or two, but which are offered now for the first time at popular prices, Charles Henderson is distinguished for its good habit, large flowers, and solid crimson color, with gold pencilings in the throat. It is a counterpart of Madame Crozy, except in color, with larger individual flowers and truss. Florence Vaughan seems to have disappointed some purchasers because it was not a true yellow, as they had supposed, but on the whole it is an exceptionally fine Canna and the best of the spotted type, being a lemon color spotted with bright red. The flower is very large and so is the truss, and it has no superior in habit or in robustness.

Among the new introductions which are held at high prices this year, Königen Charlotte, which belongs to the Crozy type, is perhaps the most distinct. It is a compact grower, and the scarlet petals have a broad yellow margin, which differs essentially from the narrow edging of Madame Crozy. These colors do not blend together, but the line between them is sharply marked, the yellow of the margin being intense and the scarlet unusually brilliant. One hardly knows whether to say that the petals are scarlet with a yellow margin, or yellow with a scarlet centre. Germania is dwarfer than Madame Crozy, and much like it, although the flower is larger and the edging narrower. Sophie Buchner is another very promising variety.

Out of numerous yearly importations growers are satisfied if one or two plants, really superior and good enough to keep, are found. So far, the only American seedling which has attained any great success has been the Star of 1891, an elegant pot-plant, and a mass of scarlet when it blooms, although its individual flowers are not so attractive as those of Madame Crozy. Many American growers are experimenting with new seedlings, and a fine one called Columbia, with a striking scarlet flower, was exhibited at the World's Fair by Kramer, of Cedar Rapids, Iowa. Mr. Pierson himself raised last year 500 plants, not one of them being a chance seedling, but all carefully crossed from what he considered the very best varieties. Of those which I saw in bloom Sunshine was noteworthy. It has immense apricot flowers, with a sheen on the petals like that

of a La France Rose, giving it a particular glow in the sunlight. The petals are so broad that they overlap and give the flower a full, round appearance which I have not seen in any other Canna. It is of medium size and grows strongly, and is a distinct improvement on Paul Marquant, which it somewhat resembles in color. Golden Heart has an intense scarlet flower with a decided yellow marking in the centre. The scarlet is so bright that the contrast is rather pleasing. The head is large and the individual petals are reflexed, so that the flower is not flat. Another seedling so distinct as to stand for a separate type, is a decided break in habit. It is so tall as to be useless as a pot-plant, but its immense head is two or three times as large as that of any other Canna, and it lasts so long that the plant seems to have much promise as a bedder. The flowers may be called a pinkish scarlet, and though they are of great size they are not perfect in shape. Oriole is somewhat similar to Königen Charlotte, although it is rather taller and a freer bloomer. The scarlet and yellow, however, are not separated by any sharp distinction, but rather blend together. The seed parent of this plant was Montefiore, but the flowers do not fade and hold on to the stem, as they do in that variety. Another variety resembles the standard J. D. Cabos in flower, but it has green leaves.

Altogether, these seedlings show that we may expect in years to come a continued advance in this class of plants. The time seems to be at hand when we may expect types as distinct from and superior to those which we now possess as Madame Crozy was from the Cannas which we had before the advent of that epoch-making variety.

New York. *S.*

Notes.

Professor Trelease issues, in advance sheets from the Fifth Annual Report of the Missouri Botanical Garden, a revision of the North American Species of Gayophytum and Boisduvalia, with ten illustrative plates.

A summary of receipts of southern vegetables in this market during last week, by rail and steamer, shows above 59,000 crates and barrels. Cabbage is the heaviest vegetable crop shipped from Florida, and tomatoes are coming by the solid car-load. Some 20,000 crates of onions are received from Bermuda each week.

The Massachusetts Horticultural Society at its last meeting gave a first-class certificate of merit to a variety of Cornus stolonifera, the Red-osier Dogwood, with bright yellow bark. It was found in Stockbridge, Massachusetts, by Mr. Warren H. Manning, and seems to be sufficiently distinct in color to be worth using for winter effect in the shrubbery.

Last week Mr. Gerard spoke of the remarkably pure dark blue of the typical form of the Chilian Crocus, Tecophilæa cyanocrocus. Since then he has sent to this office some other varieties which are quite as beautiful. Some of the flowers have petals of clear light blue, with pure white bases. Others, again, are nearly white, the blue coloring appearing only as an edging. In fact, all the forms are most attractive, and they are very valuable for early garden-flowers in a warm front border. They have survived two winters in a sunny and sheltered situation on the grounds of Mr. John McElvery, near Prospect Park, Brooklyn. How hardy they would be in more exposed situations remains to be proved.

The announced circular from the Department of Agriculture on the appearance of the San Jose scale in the east is published. From it we glean that, perhaps, this insect is already established in New York, Michigan and other states where fruit-orchards abound. The specific name of this scale, Aspidiotus perniciosus, is significant, as it is really one of the most dangerous of pests, and it is recommended that quarantine regulations be at once established to restrict its spread. In the mean time no orchardist should admit a young fruit-tree or a single cutting from a distance without satisfying himself absolutely that it does not carry a single specimen of the scale. Fruit-growers should have impressed upon them that just as soon as this insect is found the most strenuous measures must be taken to stamp it out. Trees badly infested should be instantly burned, and fruit-growers should see to it that combined and organized effort be made at once.

Just now some of the most beautiful of the early wild flowers hereabout are at their best. The white flowers of Spring Beauty, with their deep rose-colored veins, are abundant on the lawns of Central Park. Of course, the delicate blue Hepatica, the white or pinkish Rue Anemone, and the true Anemone are all sparkling on the margins of the woods. Within less than an hour of the City Hall are beds of Dog-tooth Violets half an acre in extent, while in another direction, and nearer still, can be found masses of Dicentra cucullaria, Dutchman's Breeches, with spikes of oddly-shaped, but beautiful white, yellow-tipped flowers rising from the finely cut foliage. These plants delight in a light open soil of leaf-mold, and they are often associated with the Blood-root, which loves the same soil and situation, and the snowy flowers of this plant are now open, while near by, at the edges of the turf, just where the rocks break through, the early Saxifrage is in full bloom.

A border of Narcissus is just now especially pleasing. The Tenby Daffodils are about past, but the Campernelle Jonquils, which have been blooming for a fortnight, are still in first-rate condition, and although the bulbs are very cheap, there is a grace of form and richness of color about these flowers which make them quite as effective as many of the rare and costly kinds. Many of the fine Ajax varieties, like Ard Righ, Golden Spur and Emperor, and the two-colored forms with large trumpets like Empress, Princeps and Horsfieldi, and the white and sulphur-colored ones like Cernuus and Pallidus precox are still good, while the later varieties like Narcissus poeticus have not yet begun to show a flower. Some of the rarer forms, of course, are very expensive, but there is a sufficient number in all the sections—that is, in the long-crowned group, the group with the chalice-shaped crowns, like Sir Watkin and Leedsi, and the small-crowned Daffodils, or true Narcissi—which can be had at reasonable prices, to give constant variety for six weeks at least.

Mr. John W. Harshberger writes in the *Botanical Gazette* that Ranunculus acris must be added to the list of poisonous plants, or, at least, to those which irritate the skin. Specimens of this species, which had been in alcohol for more than a year, were distributed to a class in the University of Pennsylvania for study, and a day or two afterward an intense itching sensation was experienced by all who handled them, while the skin between the fingers became red and covered with minute pustules like those produced from contact with Poison Ivy. The acrid juice, which is universal in Ranunculaceous plants, and which is usually dissipated when dried, had been evidently extracted from the specimens, and when the alcohol evaporated the irritating principle was left on the hands. Mr. Harshberger adds that the fruits of the Poison Ivy and Poison Sumach are both eaten in large quantities by the crow, and one case is recorded where 153 seeds of Poison Ivy were found in one crow's stomach; while a single pound of dried excrement from a roost in the National Cemetery at Arlington contained 1,041 seeds of Rhus Toxicodendron, 341 seeds of Rhus venenata, besides 3,271 seeds of other Sumachs, 95 seeds of Juniperus Virginiana, 10 seeds of Cornus florida and 6 seeds of Nyssa sylvatica.

A careful estimate of damage by recent frosts to strawberries about Norfolk places the injury at seventy-five per cent., and in other sections of Virginia and Maryland at fifty per cent. of the crop, but with larger plantings than in previous years the supply will not be proportionately shortened. North of these states the Strawberry crop is not injured. The color and flavor of North Carolina berries have greatly improved during the past week, and some of them, as for example Hoffman's Seedling, have been really excellent. The choice berries bring as much as thirty-five cents a quart by the crate, while the bulk of the crop of medium quality sell for twenty-five cents a quart. A few car-loads of California oranges arrived last week, the fruit coming from districts not affected by the heavy January frosts. There is some place in our market for this fruit now when the Florida season is waning, but prices are hardly encouraging to the shippers. The best Florida oranges of this season are now here, and choice fruit from famous groves of late varieties bring $5.00 a box, while the first arrivals of the Jaffa and Hart's Tardiff—summer varieties which are found here until July—bring as much as $5.50 at wholesale. Fancy grades of highly colored grape fruit cost $5.50 a box, unloaded from the steamer, and there is not enough of this popular fruit to meet the demand. Although immense quantities of bananas are coming—one firm alone selling 45,000 bunches last week—prices remain as high as $1.70 a bunch for the best Aspinwall and West Indian fruit. The new crop pineapples from Cuba are now here, although not yet sufficiently ripe. With oranges and apples scarce and high, pineapples are likely to be the popular fruit in May. Baldwins, Russets and Greenings are the only apples now quoted, and these cost from seven to eight dollars a barrel at retail, an advance of fifty cents over the price of a week ago.